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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/662,847      | 09/15/2003  | Alexander J. Roberts | GP-302409           | 1208             |

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EXAMINER

KLEBE, GERALD B

ART UNIT

PAPER NUMBER

3618

DATE MAILED: 06/09/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

|                              |                               |                                       |  |
|------------------------------|-------------------------------|---------------------------------------|--|
| <b>Office Action Summary</b> | Application No.<br>10/662,847 | Applicant(s)<br>ROBERTS, ALEXANDER J. |  |
|                              | Examiner<br>Gerald B. Klebe   | Art Unit<br>3618                      |  |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 15 September 2003.
- 2a) ☐ This action is FINAL.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-16 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 15 September 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

*G B Klebe*  
3 June 2005

### Attachment(s)

- |                                                                                                                                                 |                                                                                         |
|-------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                                                     | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                                            | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>09/15/2003</u> . | 6) <input type="checkbox"/> Other: _____                                                |

*2/4*

## DETAILED ACTION

### *Claim Rejections - 35 USC § 112*

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 12, 13 and 16 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 12 in line 3 recites the limitation "...activating said cylinder...". It is not clear to what this limitation refers since claim 12 depends directly from claim 8 where the antecedent would be found to be the recitation "...at least one cylinder..." in which case the recitation in claim 12 would be expected to be --said at least one cylinder--.

Appropriate clarification and correction is required.

For the purposes of further examination on the merits, the recitation in claim 12 "said cylinder" will be interpreted as meaning --said at least one cylinder--.

Claim 13 in line 9 recites the limitation "...said brake condition..."; there is insufficient antecedent basis for this limitation in the claim.

Appropriate correction is required.

For the purposes of further examination on the merits, this recitation will be interpreted as meaning ---said braking condition---.

Claim 16 in line 2 recites the limitation "said generator" ; there is insufficient antecedent basis for this limitation in the claim.

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For the purposes of further examination on the merits,, this recitation will be interpreted as meaning --said electric machine---.

Appropriate correction is required.

***Claim Rejections - 35 USC § 102***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1-7 are rejected under 35 U.S.C. 102(b) as being anticipated by Tamai et al. (US 6307277).

Tamai et al. (hereinafter: Tamai) discloses a regenerative braking system for a vehicle (see Fig 1, and refer col 2, lines 21-29), comprising: (**re: claim 1**)

a displacement on demand engine including cylinders (refer col 2, lines 40-42);

a battery (refer Fig 1, item 24);

an electric machine that has motor and generator modes and that is selectively driven by a wheel of the vehicle (refer col 4, lines 37-39; and col 5, lines 2-6); and,

a controller that detects a braking condition of the vehicle that deactivates at least one of the cylinders in response to the braking condition (col 4, lines 24-26), and that operates the electric machine in the generator mode during the braking condition to charge the battery (refer col 4, lines 37-39 and col 3, lines 41-46); and

(**re: claim 2**) wherein the controller deactivates all of the cylinders in response to the braking condition (refer col 3, lines 11-13); and

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(**re: claim 3**) wherein the controller detects termination of the braking condition and activates at least one of the cylinders in response to the termination of the braking condition (refer col 3, lines 48-51); and

(**re: claim 4**) wherein the controller monitors a vehicle speed and activates the at least one of the cylinders when the vehicle speed achieves a threshold (refer Fig 6A through the process steps 260, 262, 212, 214, 216 and 216A as discussed at col 13, lines 19ff); and,

(**re: claim 5**) wherein the controller selectively operates the electric machine in the motor mode to drive the wheel (refer col 4, lines 46-50); and

(**re: claim 6**) wherein the controller selectively deactivates all of the cylinders of the engine and operates the electric machine in the motor mode to drive the wheel (refer col 3, lines 18-31); and

(**re: claim 7**) wherein the electric machine charges the battery when operating in the generator mode (refer col 3, lines 34-40 and col 4, lines 37-39).

***Claim Rejections - 35 USC Sections 102 or 103(a)***

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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6. Claims 8-12 and 13-16 are rejected under 35 U.S.C. 102(b) as anticipated by Tamai et al. (6307277) or, in the alternative, under 35 U.S.C. 103(a) as being obvious over Tamai et al. (6307277).

a. As discussed above, relative to claims 1-3 and 5, the reference of Tamai et al. (-277) discloses a regenerative braking system for a vehicle comprising **(re: claim 1)** a displacement on demand engine including cylinders; a battery; an electric machine having motor and generator modes and selectively driving or being driven by a wheel of the vehicle; and a controller that detects vehicle braking and deactivates one, more, or **(re: claim 2)** all of the cylinders in response to the braking condition, and operates the electric machine in the generator mode during braking to charge the battery, and wherein **(re: claim 3)** the controller detects termination of the braking condition and activates one, more, or all of the cylinders in response to the braking condition termination and wherein **(re: claim 5)** the controller selectively operates the electric machine in the motor mode to drive the wheel, in which **(re: the steps of the method of claims 8-12 and of claims 13-16)** the method is considered inherent.

b. The Examiner posits that the Tamai et al. (-277) reference teaches the claimed method of claims 8-12 and 13-16 because the method is inherently disclosed. The rationale for this inherency is that the prior art system of Tamai et al. (-277), in its normal and usual application would necessarily require the claimed method **(re: claims 8-12)** for **(claim 8)** charging and discharging a battery in a vehicle comprising the method steps of detecting a braking condition of the vehicle, deactivating at least one cylinder of the engine in response to the braking condition; driving the electric machine in a generator mode with a wheel of the vehicle to charge the battery; **(claim 9)** deactivating all of the cylinders of the engine and

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activating the electric machine in a drive mode to drive the wheel; and further comprising (**claim 10**) providing electrical current to the electrical machine from the battery and further comprising (**claim 11**) deactivating all cylinders of the engine in response to the braking condition and further (**claim 12**) detecting termination of the braking condition and activating the cylinder(s) in response to that termination; and the claimed method (**re: claims 13-16**) of operating a vehicle having a regenerative braking system comprising the method steps of (**claim 13**) detecting a braking condition of the vehicle; deactivating a cylinder of the engine in response to the braking condition; retarding motion of the vehicle by driving an electric machine in a generator mode with a wheel of the vehicle to generate electrical current; detecting termination of the braking condition and activating the cylinder and relieving the retarding in response to the termination and further (**claim 14**) comprising charging a battery; and (**claim 15**) deactivating all cylinders and activating the electric machine in a drive mode to drive the wheel of the vehicle; and further comprising (**claim 16**) providing electrical current to the generator from a battery. See MPEP Sec. 2112.02, and refer *In re King*, 801 f2d 1324, 1326; 231 USPQ 136, 138 (Fed Cir 1986).

c. However, even if not inherent , it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the reference of Tamai et al. (-177) to include the claimed method of claims 8-12 and 13-16. Because the prior art discloses all the structure necessary to perform the claimed functions, one of ordinary skill in the art would find the claimed method to be an obvious step in light of the disclosed structures of the reference of Tamai et al. (-277).

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***Prior Art made of Record***


7. The prior art made of record and not relied upon is considered pertinent to Applicant's disclosure. The prior art of Tamai et al. (-386); of Wakashiro et al.; of Shimizu; and of Morimoto et al.; each show features in common with some of the other features of the inventive concept disclosed in the instant application.

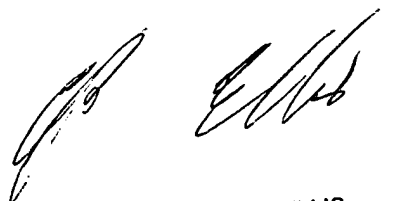
***Conclusion***

8. Any inquiry concerning this or earlier communication(s) from the examiner should be directed to Gerald B. Klebe at 571-272-6695; Mon.-Fri., 8:00 AM - 4:30 PM ET, or to Supervisory Patent Examiner Christopher P. Ellis, Art Unit 3618, at 571-272-6914.

Official correspondence should be sent to the following TC 3600 Official Rightfax numbers as follows: Regular correspondence: 703-872-9326; After Finals: 703-872-9327; Customer Service: 703-872-9325.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
gbklebe / Art Unit 3618 / 5 June 2005

  
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SUPERVISORY PATENT EXAMINER  
ART UNIT 3618